OS 11-2

INCREASING OCCUPATIONAL SAFETY OF THE HEALTHCARE WORKERS OF BANGLADESH FROM NEEDLE-STICK INJURIES THROUGH EDUCATION AND TRAINING

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Purpose: Needle-stick injury (NSI) is a major occupational hazard for transmission of blood-borne diseases among healthcare workers (HCWs). CDC estimated, annually around 236,000 out of 384,000 percutaneous injuries in the US are caused by NSI alone. This number is much higher in the developing countries. Neither standard reporting system nor any data on NSI is available from Bangladesh healthcare sector. This study was undertaken to survey the rate of NSI among HCWs and role of education and training in reducing NSI and improving occupational safety.
Methods: A one year pretest-posttest study with intervention was conducted at a secondary level community hospital in Bangladesh. The study included a baseline survey, pretest-posttest with preformed questionnaire, intervention through classroom and hands-on training and a post-training survey. The compliance rate was assessed by covert observation using a checklist and data was analyzed by SPSS. Total 141 respondents participated in the study that included nurses, laboratory and cleaning staff.
Results: After the training, overall NSI decreased significantly from 47.5% to 8.27% ($p < 0.0001$). NSI found to be reduced remarkably from 82.1% to 20.9% among cleaning staff, 32.3% to 4.1% among nurses and 88.2% to 15.3% among laboratory technicians ($p < 0.0001$). Other noteworthy findings were, introduction of colour-coded sharp bins facilitating segregation of needles from other wastes, development of protocols and use of personal protective equipments for cleaning staff, contributed largely in reduction of NSI.
Conclusions: Findings of this study have emphasized the significance of education and training of HCWs in reducing NSI as it occurs mostly due to lack of knowledge and awareness about the consequences of NSI. This study also demonstrates that implementation of NSI reporting system, with proper segregation and disposal of sharps, facilitated quality improvement initiatives as well as safeguarding HCWs from NSI, which ultimately will improve patient outcomes and quality of care.

OS 11-3

STUDY ON IMPROVEMENT OF HAND HYGIENE COMPLIANCE AND CORRECTNESS OF THE MEDICAL STAFF IN A LARGE HOSPITAL

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Purpose: To explore strategies and measures to improve hand hygiene (HH) compliance and correctness of the medical staff in a large hospital.
Methods: Measures according to World Health Organization (WHO) were adopted from the following aspects, system change, education, observation and feedback, reminders in the workplace and safety climate improvement from 2012 until now. Meanwhile, clinical departments were divided into key departments (including ICU and top ten departments according to the prevalence of nosocomial infection of previous year) and general departments (remaining departments). HH of key departments was observed by hospital infection control professionals for 40 opportunities per month, and that of general departments was for 40 opportunities per quarter. Correctness and compliance of HH, the consumption amount of alcohol-based hand rub and hand sanitizer were compared between first half of 2012 and first half of 2014 to evaluate effect of the five strategies.
Results: 9553 HH opportunities were observed in the first half of 2012, of which 3372 for hand rub, 1755 for hand wash and 4426 for missing. While 11023 opportunities were observed in the first half of 2014, of which 8006 for hand rub, 363 for hand wash and 2654 for missing. Respectively, compliance of HH were 53.67% and 75.92%, and the difference was statistically significant ($\chi^2 = 1123.003$, $P = 0.000$). As correctness of HH opportunities in the first half of 2012 was 83.88%, of which 3642 opportunities were correct and 700 opportunities were incorrect. Compared with the correctness in the first half of 2014(94.11%, 7782 were correct and 487 were incorrect), there was significant difference ($\chi^2 = 349.588$, $P = 0.000$). The consumption amount of alcohol-based hand rub and hand sanitizer were 8.44 ml per bed day and 11.25 ml per bed day in the first half of 2012 and the amount of the HH agents increased in the first half of 2014(16.87ml per bed day for hand rub and 11.79 ml per bed day for hand sanitizer separately). The total amount of the HH agents in the first half of 2014 increased 45.56% compared with that in the first half of 2012.
Conclusions: HH compliance and correctness of the medical staff can be improved by HH five strategies of WHO (system change, education, observation and feedback, reminders in the workplace and safety climate improvement).
Keywords: Compliance; Correctness; Hand Hygiene

OS 11-4

THE IMPACT OF ENHANCED STRATEGY ON THE EFFECTIVENESS OF ENVIRONMENTAL DISINFECTION AT HIGH RISK AREAS

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Purpose: The aim is to compare the effectiveness of the existing terminal cleaning method with the enhanced strategy using GlosairTM 400 and detergent & water cleaning in the Burns Centre at an acute tertiary care hospital.
Method: This was a single blinded prospective randomized study where 60 patients admitted to the Burns Centre were selected for one of the 2 arms of the study — routine cleaning with 1,000 ppm sodium hypochlorite or use of hydrogen peroxide (GlosairTM 400). Environmental cultures from the 5 'high touch' areas were sampled using swabs before cleaning.
Results: 60 rooms were recruited from August 2013 to February 2014. 23.3%, 26.7% and 63.3% were ICU, HD (GW) and HD rooms respectively. The standard terminal cleaning resulted in 39% ($p < 0.01$) reduction of positive environmental cultures yield while HPV decontamination resulted in 54% ($p < 0.01$) reduction of positive yield. Both arms shows a significant reduction of positive cultures, however the findings showed a 15 % more reduction of microbial yield from environment with the usage of H2O2 vapor via Glosair™ 400
Conclusion: Both HPV and standard terminal cleaning reduced environmental contamination. However, there was a 15% more reduction in positive yield with HPV as compared to standard terminal cleaning. There is a role for the incorporation of VHP decontamination in the routine terminal clean to maintain optimal environmental cleaning standards.

OS 11-5

CLEANING VERIFICATION: IS THIS REQUIRED?

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Purpose: The aims of this study were to validate the surgical instrument cleaning process; evaluate four verification tools: adenosine triphosphate (ATP), protein residue, visual inspection with or without magnify glass; and assess efficacy between current cleaning agent and the 3M Biofilm Removal Multi-enzyme Cleaner (BMEC).
Method: The cleaning of Ronguer, long forceps, power tools and hollow suction tubes was evaluated in this study. Before and after each cleaning, ATP and protein residue were determined from swabs of exterior surfaces and interior suction channels. Similarly, before and after cleaning of each instrument, visual inspection on cleanliness of the surgical instruments with and without lighted magnifying glass was done.
Results: Before cleaning, ATP values were 24474 relative light units (RLU) from Ronguer, 63641 RLU from Scissor, 94173 RLU from Suction tube and 142505 RLU from Handpiece. After cleaning, ATP values from Ronguer were 47 RLU [95% confidence interval (CI) 19-75], ATP values from Scissor were were 67 RLU [95% confidence interval (CI) 12-121], ATP values from Suction tube were 74 RLU [95% confidence interval (CI) 39-109], ATP values from Handpiece were 729 RLU [95% confidence interval (CI) 383-1076]. ATP values after cleaning from BMEC were 91RLU [95% confidence interval (CI) 48-133]. ATP values after cleaning from current detergent were 244 [95% confidence interval (CI) 84-403], a statistically significant difference. Protein residual values after cleaning were 3.6 [95% confidence interval (CI) 3-4.4].